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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,504	07/12/2001	Masatoshi Deguchi	5350-103D1/10105921	3978

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EXAMINER

JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/905,504	DEGUCHI ET AL.	
	Examiner	Art Unit	
	Kirsten Crockford Jolley	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/312,542.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

A first paragraph of the specification should be added stating that the instant application is a divisional of U.S. Application No. 09/312,542, now U.S. Patent No. 6,281,145.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-16 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 is vague and indefinite because it states "The apparatus according to claim 14", however claim 14 is directed to a method. Since claim 15 appears to be directed to a method limitation and not an apparatus limitation, the claim has been interpreted as a method limitation for the purpose of examination; "apparatus" in line 1 should be changed to --method--.

Claim 25 is vague and indefinite because it states "The apparatus according to claim 21", however claim 21 is directed to a method. Since claim 21 appears to be directed to a method limitation and not an apparatus limitation, the claim has been interpreted as a method limitation for the purpose of examination; "apparatus" in line 1 should be changed to --method--.

*Claim Rejections - 35 USC § 102/103*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-17 and 20-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hasebe et al. (US 5,658,615).

With respect to claim 14, Hasebe et al. discloses a method for applying photoresist solution to a substrate comprising a plurality of nozzles and respective supply systems, each supplying different types of photoresist solution (see Figures 21-25 and col. 15-17). Hasebe et al. teaches the mechanism for supplying photoresist in col. 4, line 48 to col. 6, line 30. This process includes a supply mechanism configured to change a rate at which the process solution is supplied; the supply being driven by the controller at a rate and in a predetermined amount. After supplying the photoresist coating solution onto the substrate, the substrate and spin chuck are rotated to spread the coating solution by virtue of centrifugal force to coat the substrate.

Hasebe et al. lacks a specific teaching that the supply rate of a selected photoresist solution and supply system is based on data representing relationships between the photoresists

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and supply rates prescribed for them stored in the controller. However, it is the Examiner's position that since Hasebe et al. teaches applying the photoresist solutions in predetermined amounts for predetermined periods of time, such would inherently comprise a step of determining the desired predetermined amount/rate and length of time of supplying and dispensing the coating solutions for each photoresist material (col. 17, lines 14-18).

Alternatively, it is the Examiner's position that it would have been obvious to one having ordinary skill in the art to have set forth supply rates for the plurality of photoresist solutions because the controller necessarily requires a preset rate and amount and because different photoresist coating solutions have different properties (viscosity, concentration, etc.) and therefore it would have been obvious to have determined the optimum supply system for each type of photoresist solution.

As to claims 20-21, Hasebe et al. teaches placing the nozzles for supplying the photoresist solutions at a waiting section disposed outside the spin holder and transferring the nozzles from the waiting section to a position above the substrate in Fig. 23 at col. 16.

As to claim 15, Hasebe et al. teaches forming a uniform thickness at col. 1, lines 59-62. As to claims 16 and 22, Hasebe et al. teaches using an amount of photoresist of 0.9 cc (or 0.9 ml) in col. 12, lines 50-55. As to claims 17 and 23, Hasebe et al. teaches using a bellows pump and stepping motor in col. 4-5, as well as controlling the rate of discharging the process solution based on rotation speed.

***Claim Rejections - 35 USC § 103***

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7. Claims 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasebe et al.

Hasebe et al. lacks a teaching of detecting the amount of the resist solution remaining in a supply tank. It is the Examiner's position that it would have been obvious in a highly controlled process, such as that of Hasebe et al., to detect and control the amount of coating solution available because running out of coating solution would potentially cause many problems downstream such as mandatory shut down of the production process, drying out of the nozzles and supply lines, causing air to be trapped in the supply lines and nozzles, etc. Therefore, it is the Examiner's position that it would have been obvious to one having ordinary skill in the art to have used a supply detection system in Hasebe et al.'s process in order to avoid the above complications.

8. Claims 19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasebe et al. as applied to claims 1-17 and 20-23 above, and further in view of Akimoto et al. (US 5,938,847).

Hasebe et al. lacks a step of detecting the time at which a replaceable filter is to be replaced. Akimoto et al. is cited for its teachings of the importance of tracking the efficiency of a filter and determining the time at which a replaceable filter is to be replaced (col. 1, lines 31-45). It would have been obvious to have used the filter tracking/detecting method of Akimoto et al. in the spin coating process of Hasebe et al. in order to determine the appropriate time for changing the filter in order to avoid irregularities formed in the coating film.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art references are supplied to demonstrate the state of the prior art relating to the instant invention: Davis (US 5,779,799), Ushijima et al. (US 5,002,008), and Akimoto (US 5,772,764).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten Crockford Jolley whose telephone number is 703-306-5461. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193.

kcj  
March 22, 2003

  
**SHRIVE P. BECK**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**